

**Amendments to the Claims:**

This listing of claims replaces all prior versions, and listings, of claims in this application.

**Listing of Claims:**

1 – 34. (Canceled)

35. (Currently Amended) A device used for interleaving in turbo codes, comprising:

means for grouping a source sequence of symbols into a sequence of M blocks ~~sub-~~  
~~blocks~~, wherein M is a number of the blocks and M is determined by the number of symbols of a  
source sequence, and wherein each block includes L number of symbols;

means for ~~sequentially~~ performing intra-block permutations on the sequence of M blocks  
~~sub-blocks in a block-by-block manner~~ to produce an intra-block permuted sequence by re-  
ordering the symbols within each block ~~sub-block~~ of the sequence of M blocks ~~sub-blocks~~;

means for grouping the intra-block permuted sequence into an intra-permuted sequence  
of blocks ~~sub-blocks~~; and

means for performing inter-block permutations, ~~once the intra-block permutations has~~  
~~initiated~~, on the intra-block permuted sequence of blocks ~~sub-blocks~~ by re-ordering the symbols  
in each block of the intra-permuted sequence of blocks ~~sub-blocks~~ across a number of blocks  
~~sub-blocks~~ to form an interleaved output sequence of symbols, wherein the symbols of a given  
block K ~~K<sup>th</sup> sub-block~~ in the intra-permuted sequence of blocks ~~sub-blocks~~ are re-ordered across  
E<sub>K</sub> blocks ~~sub-blocks~~ prior to the given block K ~~K<sup>th</sup> sub-block~~ and L<sub>K</sub> blocks ~~sub-blocks~~ after the  
given block K ~~K<sup>th</sup> sub-block~~, wherein E<sub>K</sub> is an integer of min(D, K-1) and L<sub>K</sub> is an integer of min

(D, M-K), and D is a parameter associated with the inter-block permutation ~~half of a permutation spread of the inter-block permutation in the sub-blocks.~~

36. (Original) The device of claim 35, wherein the means for performing intra-block permutations re-orders symbols within blocks of the sequence of symbols of a first length.

37. (Currently Amended) The device of claim 35, wherein the means for performing inter-block permutations re-order symbols of within blocks across their immediate neighboring ~~2D of~~ intra-block permuted sequence of symbols of a second length.

38. (Previously Presented) The device of claim 35, further comprising a second device used for de-interleaving in turbo codes, said second device comprising:

means for performing permutations on a sequence of symbols to reverse intra-block permutations and produce a reverse intra-permuted sequence; and

means for performing permutations on the reverse intra-permuted sequence to reverse inter-block permutation.

39. (Currently Amended) A method for interleaving in turbo codes, comprising:  
grouping a source sequence of symbols into a sequence of M blocks ~~sub-blocks~~, wherein  
M is a number of the blocks and is determined by the number of symbols of a source sequence,  
and wherein each block includes L number of symbols;

performing ~~sequentially~~ intra-block permutations on the sequence of M blocks ~~sub-blocks~~  
~~in a block by block manner~~ to produce an intra-block permuted sequence by re-ordering the  
symbols within each block ~~sub-block~~ of the sequence of M block ~~sub-blocks~~;

grouping the intra-block permute sequence into an intra-permuted sequence of sub-  
blocks; and

performing inter-block permutations, ~~once the intra-block permutations has initiated~~, on  
the intra-block permuted sequence of blocks ~~sub-blocks~~ by re-ordering the symbols in each block  
of the intra-permuted sequence of blocks ~~sub-blocks~~ across a number of blocks ~~sub-blocks~~ to  
form an interleaved output sequence of symbols, wherein the symbols of a given block  $K$   $K^{\text{th}}$   
~~sub-block~~ in the intra-permuted sequence of blocks ~~sub-blocks~~ are re-ordered across  $E_K$  blocks  
~~sub-blocks~~ prior to the given block  $K$   $K^{\text{th}}$  ~~sub-block~~ and  $L_K$  blocks ~~sub-blocks~~ after the given  
block  $K$   $K^{\text{th}}$  ~~sub-block~~, wherein  $E_K$  is an integer of  $\min(D, K-1)$  and  $L_K$  is an integer of  $\min(D,$   
 $M-K)$ , and  $D$  is a parameter associated with the inter-block permutation ~~half of a permutation~~  
~~spread of the inter block permutation in the sub-blocks.~~

40. (Original) The method of claim 39, wherein performing intra-block permutations re-  
orders symbols within blocks of the sequence of symbols of a first length.

41. (Currently Amended) The method of claim 39, wherein performing inter-block  
permutations re-order symbols ~~within blocks~~ of the intra-block permuted block across their  
immediate neighboring 2D intra-block permuted sequence of symbols of a second length.

42. (Previously Presented) The method of claim 39, wherein the intra-block and inter-block permutations are performed simultaneously after being initiated.

43. (Previously Presented) The method of claim 39 further comprising de-interleaving in turbo codes, the de-interleaving comprising:

performing permutations on a sequence of symbols to reverse intra-block and inter-block permutations.

44. (Previously Presented) The method of claim 39 further comprising de-interleaving in turbo codes, the de-interleaving comprising:

performing permutations to reverse intra-block and inter-block permutations simultaneously.

45. (Canceled)

46. (Canceled)